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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/809,815

03/26/2004

Yoshihiro Hori

65933-083

7932

20277 7590 07/18/2008
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EXAMINER

LAFORGIA, CHRISTIAN A

ART UNIT

PAPER NUMBER

2139

MAIL DATE

DELIVERY MODE

07/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/809,815	Applicant(s) HORI ET AL.	
	Examiner Christian LaForgia	Art Unit 2139	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment of 28 April 2008 has been noted and made of record.
2. Claims 1-18 have been presented for examination.

Response to Arguments

3. Applicant's arguments, see page 8, filed 04 February 2008, with respect to the claim objections have been fully considered and are persuasive. The claim objections of claims 10 and 12 have been withdrawn.
4. Applicant's arguments, see pages 8 and 9, filed 04 February 2008, with respect to the rejections made under 35 U.S.C. 101 have been fully considered and are persuasive. The 35 U.S.C. 101 rejections of claims 1-11 have been withdrawn.
5. Applicant's arguments, see page 9, filed 04 February 2008, with respect to the rejections made under 35 U.S.C. 112, 2nd paragraph have been fully considered and are persuasive. The 35 U.S.C. 112, 2nd paragraph rejections of claims 1-18 have been withdrawn.
6. Applicant's arguments filed 04 February 2008 have been fully considered but they are not persuasive.
7. The Applicant argues that dividing data into multiple subprocess, each having its own command so that multiple cryptographic processing can be processed in parallel, wherein the command includes identifying data is not taught in the Ohta reference. The previous Examiner cited a section that disclosed performing the encryption processing in parallel. While the Examiner agrees that the Ohta reference is silent with regards to the identifying information, a skilled artisan would clearly recognize that parallel processing requires some type of identifying information to be included in the sub-processes. This is further supported by U.S. Patent No.

Art Unit: 2139

5,781,775 to Ueno, hereinafter Ueno, which illustrates a parallel processing system. Ueno discloses the use of a process identifier in at least column 5, line 66 to column 6, line 8; column 6, line 62 to column 7, line 4; column 7, lines 31-39; column 7, lines 59-63. As disclosed in the cited sections this process identifier is used to handle any commands generated with respect to the related process, such as interrupts. Since including identification information in parallel processes is known and Ohta discloses executing the encryption in parallel, the claim limitations have been met and the rejection is maintained.

8. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies, such as allowing the storage device to predetermine an upper-limit number of the cryptographic input and output processes that the storage device can perform simultaneously in accordance with its own performance, are not recited in the rejected independent claims. Although the claims are interpreted in light of the specification, limitations from the specification and dependent claims are not read into the independent claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

9. Applicant's arguments regarding the rejections made under 35 U.S.C. 103(a) amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

10. See further rejections set forth below.

Claim Rejections - 35 USC § 102

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 2139

12. Claims 1, 4, 5, 7, 8, and 10-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohta et al. (US 7,158,637) herein referred to as Ohta.

13. Regarding Claims 1 and 7, Ohta discloses a storage devices comprising:

a storage medium for retaining data (column 7 lines 43-53); and

a cryptographic processing unit (figure 3 Encryption and Authentication Processing Control Unit) which receives, from a host device, and executes a command corresponding to each of the plurality of sequenced subprocesses produced by dividing each of a series of cryptographic input/output processes for encrypting data to be secured and inputting/outputting the data between the storage medium and the host device, (column 6 lines 1-20, and description of figure 3 particularly in column 6 lines 39-58),

wherein the cryptographic processing unit simultaneously processes subprocesses respectively belonging to tow or more different cryptographic input and output processes by referring to identifying information attached to the command identifying to which cryptographic input/output process the command belongs (column 2 lines 7-11).

14. Regarding Claim 4 and 13, Ohta discloses the storage device and method according to claims 1 and 12, wherein the number of the cryptographic input/output processing which can be performed simultaneously by the storage device is predetermined in accordance with a performance of the storage device (column 2 lines 24-61 wherein the processing is achieved by breaking the data into predetermined data blocks according to the data block size for authentication processing).

Art Unit: 2139

15. Regarding Claims 5, 8, and 14, Ohta discloses the storage devices and method according to claim 1, 7, and 12 wherein in response to a request from the host device, the storage device provides to the host device the maximum number of cryptographic input/output processing which can be performed simultaneously by the storage device (column 2 lines 2-61 wherein the blocks are accumulated until the appropriate maximum size for the accumulation buffer then outputted).

16. Regarding Claims 10 and 12, Ohta discloses a host device and method which exchanges data with a storage device that is capable of simultaneously performing a plurality of series of cryptographic input/output processes for encrypting data to be secured and inputting/outputting the data, the host device comprising:

a controller which divides the cryptographic input/output processing into a plurality of sequenced subprocesses and issues commands sequentially to the storage device thereby allowing the storage device to execute a subprocess to be executed on the storage device side (column 6 lines 1-20, and description of figure 3 particularly in column 6 lines 39-58); and

a cryptographic processing unit which carries out encryption or decryption that is required of the cryptographic input/output process (column 2 lines 7-11), wherein when the controller issues a command, the controller attaches identifying information to the command to identify to which one of the plurality of cryptographic input/output processes the command belongs (column 6 lines 1-20 where processing information is the identifying information).

17. Regarding Claim 11, Ohta discloses the host device according to claim 10, wherein the controller issues a command to allocate a process system for performing the cryptographic input/output processing prior to initiation of the cryptographic input/output processing (column 6 lines 1-20 where processing information is the identifying information and the determination of which kind of processing the data requires is interpreted to be allocating a process system).

18. Regarding Claim 15, Ohta discloses the data input/output method according to claim 13, further comprising, prior to performing the cryptographic input/output processing, selecting and allocating identifying information for identifying the cryptographic input/output processing to be performed from among the prepared number of pieces of identifying information determined in the determining step (column 6 lines 1-20 where processing information is the identifying information and the determination of which kind of processing the data requires is interpreted to be allocating a process system).

19. Regarding Claim 16, Ohta discloses the data input/output method according to claim 14, further comprising, prior to performing the cryptographic input/output processing, selecting and allocating identifying information for identifying the cryptographic input/output processing to be performed from among the prepared number of pieces of identifying information determined in the determining step (column 6 lines 1-20 where processing information is the identifying information and the determination of which kind of processing the data requires is interpreted to be allocating a process system).

Claim Rejections - 35 USC § 103

20. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

21. Claims 2, 3, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta et al. (US 7,158,637) herein referred to as Ohta as applied to claims 1, 4, 5, 7, 8, and 10-16 above, and further in view of Callum (US 6,295,604) herein referred to as Callum.

22. Regarding Claims 2 and 17, Ohta teaches the limitations of claims 1 and 12.

23. Ohta does not teach the storage device and method, wherein the cryptographic processing unit manages the sequence of commands executed in each cryptographic input/output processing and rejects the execution of an incorrectly sequenced command when the cryptographic processing unit receives the incorrectly sequenced command.

24. Callum teaches the storage device and method, wherein the cryptographic processing unit manages the sequence of commands executed in each cryptographic input/output processing and rejects the execution of an incorrectly sequenced command when the cryptographic processing unit receives the incorrectly sequenced command (Callum column 5 lines 26-53).

25. It would be obvious to someone of ordinary skill in the art at the time the invention was made, to use Callum's system of interrupting Ohta's processes if they are incorrect in sequence, since Callum states at column 5 lines 34-40 it would be beneficial to check for error or abnormal conditions in the cryptographic input or output.

26. Regarding Claims 3 and 18, Ohta discloses the limitations of claims 2 and 17.

Art Unit: 2139

27. Ohta does not teach the storage device and method wherein when the cryptographic processing unit receives the incorrectly sequenced command, the cryptographic processing unit interrupts the cryptographic input/output processing to which the command belongs.

28. Callum teaches teach the storage device and method wherein when the cryptographic processing unit receives the incorrectly sequenced command, the cryptographic processing unit interrupts the cryptographic input/output processing to which the command belongs (Callum column 5 lines 26-53 software interrupt).

29. It would be obvious to someone of ordinary skill in the art at the time the invention was made, to use Callum's system of interrupting Ohta's processes if they are incorrect in sequence, since Callum states at column 5 lines 34-40 it would be beneficial to check for error or abnormal conditions in the cryptographic input or output.

30. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta et al. (US 7,158,637) herein referred to as Ohta as applied to claims 1, 4, 5, 7, 8, and 10-17 above, and further in view of Porter et al. (US 2003/0226029) herein referred to as Porter.

31. Regarding claims 6 and 9, Ohta teaches the limitations of claims 1 and 7.

32. Ohta does not teach the storage devices, wherein the storage medium comprises a normal data storing unit and a confidential data storing unit, the normal data storing unit storing normal data to be exchanged bypassing the cryptographic processing unit, the confidential data storing unit storing the secret data to be exchanged via the cryptographic processing unit.

33. Porter teaches the storage devices, wherein the storage medium comprises a normal data storing unit and a confidential data storing unit, the normal data storing unit storing normal data

to be exchanged bypassing the cryptographic processing unit, the confidential data storing unit storing the secret data to be exchanged via the cryptographic processing unit (Porter paragraph 39 common memory and protected memory).

34. It would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate both a protected and common memory in the cryptographic system of Ohta, since Porter states in paragraph [0039] that a region of memory can be designated as protected from the unauthorized use by using encryption.

Conclusion

35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

36. The following patents are cited to further show several applications related to the present application, such as:

United States Patent Application Publication No. 2004/0249993 A1 to Hori et al.

United States Patent Application Publication No. 2006/0106721 A1 to Hori et al.

United States Patent Application Publication No. 2006/0069650 A1 to Hori.

United States Patent Application Publication No. 2006/0021063 A1 to Hori.

United States Patent Application Publication No. 2006/0018474 A1 to Hori et al.

United States Patent Application Publication No. 2006/0018473 A1 to Hori.

37. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

38. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian LaForgia whose telephone number is (571)272-3792. The examiner can normally be reached on Monday thru Thursday 7-5.

40. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine L. Kincaid can be reached on (571) 272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

41. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christian LaForgia/
Primary Examiner, Art Unit 2139

Application/Control Number: 10/809,815
Art Unit: 2139

Page 11

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